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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,986	09/05/2003	Sudipta Seal	UCF-374	1954

23717 7590 05/17/2006

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EXAMINER

MILLER, DANIEL H

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/655,986

Applicant(s)

SEAL ET AL.

Examiner

Daniel Miller

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 8-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 21-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/5/2003.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I (claims 1-7 and 21-30) in the reply filed on 4/10/2006 is acknowledged. The traversal is on the ground that that no serious burden exists in examining all the pending claims. This is not found persuasive because for purposes of the initial requirement, a serious burden on the examiner may be *prima facie* shown if the examiner shows by appropriate explanation of separate classification, or separate status in the art, or a different field of search (as defined in MPEP § 808.02). The restriction requirement clearly meets this requirement. While that *prima facie* showing may be rebutted by appropriate showings or evidence by the applicant, an *unsupported* statement by applicant that no serious burden would exist in the examination of all pending claims does not qualify as an "appropriate showing" or "evidence". See MPEP 803. The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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2. Claims 1-2, 4-5, 7, 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Atita (U.S. 5,472,795).
3. Atita teaches a nanolaminate of zirconium oxide containing a thin layer of polycrystalline metastable tetragonal zirconia deposited on a support (substrate) (abstract). The average crystal (particle) dimension is preferably less than 13 nm (column 3 line 67-68; column 4 line 1) and would inherently be spherical. Atita further teaches that the zirconia can be 100% tetragonal zirconia (column 10 line 5-30) substantially free of stabilizing dopant (oxides) (column 6 line 33-35).
4. Claims 1, 3-4, 6, 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Montino (U.S. 5,002,909).
5. Montino teaches spherical particles of mixed oxides of alumina and zirconia, stabilized at room temperature in a crystalline tetragonal phase, consisting essentially of non-agglomerates particles (monodispersed), and having a particle size from .1 to 1 micrometer (column 3 line 15-20, 25-30, 55-60).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 21-23, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atita (U.S. 5,472,795) in view of Allen (U.S. 6,652,987).
8. Atita, discussed above, is silent as to the presence of a metal substrate. However Atita does teach that the substrate can be virtually any desired material (column 3 line 22-24), and that the invention provides a tough coating that will adhere to an unheated substrate regardless of its chemical nature (column 3 line 33-35).
9. Allen teaches that it is known in the art to use tetragonal zirconium oxide thermal barrier coatings on metals, in applications such as turbine engines, for reducing radiation heat transfer and reducing metal temperatures and cooling requirements (column 1 line 5-37).
10. It would have been obvious to one of ordinary skill in the art at the time of the invention to put the coating of Atita on a metal substrate because the substrate can be virtually any desired material, and that the invention provides a tough coating that will adhere to an unheated substrate regardless of its chemical nature; and it is known to use a tetragonal zirconium oxide thermal barrier coatings metal substrate in applications such as turbine engines, for reducing radiation heat transfer and reducing metal temperatures and cooling requirements.

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11. Claims 1, 3-4, 6, 21-22, 24-26, 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leushake (U.S. 6,168,833 B1) in view of Allen (U.S. 6,652,987).

12. Leushake teaches a coating process (abstract), used in coating with ceramic layers (metal) internal combustion or turbine engines (column 3 line 18-36). In creating a coating the process first creates monodispersed, (free of other oxides) unstabilized zirconium oxide powder or particles (column 5 line 60-63; column 6 line 1-43).

Exemplary of the invention are coarse particles with an average diameter of 570 nm and fine particles having an average diameter of 300 nm (Example II). However, the reference is silent as to the zirconium oxide being in tetragonal phase.

13. Allen teaches that it is known in the art to use tetragonal zirconium oxide thermal barrier coatings on metals, in applications such as turbine engines, for reducing radiation heat transfer and reducing metal temperatures and cooling requirements (column 1 line 5-37).

14. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the coating of Leushake with tetragonal zirconia because it is known to use a tetragonal zirconium oxide thermal barrier coatings metal substrate in applications such as turbine engines, for reducing radiation heat transfer and reducing metal temperatures and cooling requirements.

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Miller whose telephone number is (571) 272-1534. The examiner can normally be reached on M-F/Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel Miller



JENNIFER C. MCNEIL
SUPERVISORY PATENT EXAMINER
5/15/06